

MARSH (E. J.)

②
al

MORTALITY

FROM

CASUALTIES

presented by the author —



PUBLISHED BY
THE MUTUAL LIFE INSURANCE COMPANY
OF NEW YORK
1896

WITH THE COMPLIMENTS OF
The Mutual Life Insurance Company of New York

Richard A. M. Cuddy

23841

President.

MORTALITY
FROM
CASUALTIES



PUBLISHED BY
THE MUTUAL LIFE INSURANCE COMPANY
OF NEW YORK
1896

Copyrighted by
The Mutual Life Insurance Company of New York
March, 1896

MORTALITY FROM CASUALTIES.

MR. RICHARD A. MCCURDY,
President.

Sir:

I respectfully present for your consideration
the following report :

REPORT ON THE MORTALITY RESULTING FROM CASUALTIES.

The mortality from casualties is of great interest to life insurance companies, because such deaths are liable to occur equally at early and late ages and after short or long periods of insurance, and thus occasion unexpected and serious losses.

All ages and conditions of life are exposed to some danger of accident, although the special kind of danger will vary with the age, the place of residence, the occupation, and the habits of life. The young are more reckless and more apt to engage in hazardous occupations; the old are less alert in observation and movement, and have less power of resistance and recuperation from injuries. In some forms of occupation the hazard to life is so great as to render the persons engaged in them

uninsurable; in others, the danger is above the average, and yet counterbalanced by conditions which conduce to good health and longevity. The hazard attached to many occupations and conditions may vary, and what is at one time perilous may become comparatively safe by the discovery and enforcement of new safeguards and methods of protection. This holds good also for the dangers of travel by water and land. While the habit and custom of traveling has enormously increased within recent years, the danger to the individual is less now than it ever has been. Accidents are still numerous, but not in proportion to the increase in railroad travel; while the losses on the ocean have greatly diminished. With the introduction of every new mode of conveyance a new and increased danger arises, as with the cable and electric cars; but it is generally only a substitution of one form of danger for another, and is soon counteracted by custom and experience.

I propose to examine in detail the deaths that have occurred from casualties during the past ten years, classifying them according to the manner and cause of death. I shall give tables illustrating the important facts of each class, and will compare the figures with those given in the previous mortality report of the Company. In comparing the recent mortality with that in the previous report, it will be found that the proportion of deaths from casualties compared with the

total mortality is far less now than formerly, but that this difference is chiefly due to the difference in the ages of the Company's risks. In the earlier records the proportion of elderly persons was very small; the business was new business, and consequently there was little accumulation of old lives. Now, it is different, and there is a considerable accumulation of old lives. Among old lives other natural causes of death preponderate and the casualties are reduced to a small proportion, although they may be as numerous when compared with the lives at risk as they were at an earlier age. For this reason it would be more proper to compare only the mortality during the earlier ages or earlier periods of insurance.

During the past ten years—1884 to 1893, inclusive—there have been seven hundred and fifty-nine (759) deaths from casualty, caused as follows:

1.	Railroad accidents,	. . . . .	120
2.	Falls and falling bodies,	. . . . .	119
3.	Drowning,	. . . . .	118
4.	Horse and wagon, etc.,	. . . . .	84
5.	Homicide,	. . . . .	76
6.	Firearms,	. . . . .	72
7.	Poisons,	. . . . .	48
8.	Heat, cold, etc.,	. . . . .	35
9.	Burns, scalds, etc.,	. . . . .	31
10.	Machinery, tools, elevators,	. . . . .	25
11.	Unclassified,	. . . . .	31
			<hr/>
			759

In the following tables the classes have been analyzed according to the ages and duration of insurance, and the peculiar circumstances of each class.

TOTAL CASUALTIES.

1884 to 1893.

AGES	Total Deaths from all Causes	Total Casualties	Railroad Injuries	Falls and Falling Bodies	Drowning	Horses, Wagons, etc.	Homicide	Fire-arms	Poison	Effects of Heat and Cold	Burns, Fires, etc.	Machinery and Tools	Unclassified
20 to 29 years	787	82	10	5	22	3	10	12	6	5	4	4	1
30 to 39 years	2,112	168	22	12	31	20	36	14	11	3	6	6	7
40 to 49 years	2,941	198	26	32	27	13	19	28	14	12	13	6	8
50 to 59 years	4,064	169	33	36	21	24	9	11	13	7	4	4	7
60 to 69 years	4,312	97	21	22	13	12	2	6	4	6	3	3	5
70 years and over ..	3,159	45	8	12	4	12	0	1	0	2	1	2	3
TOTAL	17,375	759	120	119	118	84	76	72	48	35	31	25	31

DURATION OF INSURANCE	Total Deaths from all Causes	Total Casualties	Railroad Injuries	Falls and Falling Bodies	Drowning	Horses, Wagons, etc.	Homicide	Fire-arms	Poison	Effects of Heat and Cold	Burns, Fires, etc.	Machinery and Tools	Unclassified
1 and 2 years	1,785	190	28	18	34	14	34	25	8	7	7	11	4
3 to 5 years	2,069	137	9	18	26	16	26	12	11	9	4	4	2
6 to 10 years	2,151	103	14	15	15	13	5	9	11	5	7	2	7
11 to 20 years	4,984	190	34	35	32	28	9	17	7	5	9	6	8
21 years and over ..	6,386	139	35	33	11	13	2	9	11	9	4	2	10
TOTAL	17,375	759	120	119	118	84	76	72	48	35	31	25	31

Taking up and analyzing each class, we have, first, railroad accidents.

RAILWAY.

AGES	TOTALS	Passengers on Trains	Struck by Trains at Street Crossings, etc.	Railroad Employees	Street Cars	Indefinite Statement
20 to 29 years	10	5	0	4	1	0
30 to 39 years	22	12	4	5	0	1
40 to 49 years	26	9	7	2	4	4
50 to 59 years	33	9	15	1	2	6
60 to 69 years	21	4	13	1	3	0
70 years and over	8	0	5	0	1	2
	120	39	44	13	11	13

DURATION OF INSURANCE						
1 and 2 years	28	11	6	8	2	1
3 to 5 years	9	5	0	2	2	0
6 to 10 years	14	5	5	0	0	4
11 to 20 years	34	11	12	2	4	5
21 years and over	35	7	21	1	3	3
	120	39	44	13	11	13

This division includes accidents on all kinds of railroads, viz.: steam, cable, electric and horse car.

Thirty-nine (39) were passengers on trains, and forty-four (44) were killed by trains at street or road crossings, etc. The deaths among the travelers are distributed without reference to periods of life or insurance, while of those

killed at street crossings, etc., a very large majority were past middle life. Of the eleven (11) deaths by street cars, six (6) were by cable cars, three (3) passengers getting on or off the cars, and three (3) struck by cars in crossing the street; three (3) were on electric cars, two (2) passengers; two (2) by horse cars, both elderly men, knocked down and run over while crossing the street.

Of these one hundred and twenty (120) deaths, thirteen (13) occurred among railroad employees. This is eleven per cent. of the total number, a very large proportion considering the small number of railroad men insured in the Company. Eight (8) of these thirteen (13) deaths took place within two years of the time of insurance; five (5) were trainmen, one (1) locomotive engineer, two (2) brakemen, and two (2) railway postal clerks; three (3) were station agents, and one (1) an office clerk; two (2) were working as track laborers; one (1) was a "night patrol," and, while riding on his velocipede along the track in this capacity, was run over by an express train. One (1) was a railroad superintendent, and was killed in a collision while riding in an ordinary passenger train.

Very few of these persons were accepted for insurance while engaged in these occupations. They either made incorrect statements, or assumed these occupations after their policies were issued. The large number of accidents, and the very short duration of the insurance, indicate plainly the excessive amount of hazard incurred in

connection with all railroad work. This hazard may not be sufficient to disqualify absolutely from insurance, but it indicates certainly the necessity for extreme care in selection, and probably for an extra premium.

FALLS AND FALLING BODIES.

AGES	TOTALS	Falls Down Stairs	Falls From Windows and Balconies	Falls From Buildings	Falls on Pavement, etc.	Falls Down Hatchway, Elevator Shafts, etc.	Falls Into Excavations, etc.	Falls from Windmill	Falls Into Mines, Quarries, etc.	Miscellaneous Falls	Falling Bodies	Indefinite History
20 to 29 years ..	5	0	0	0	0	0	1	0	2	0	2	0
30 to 39 years ..	12	2	1	3	0	2	0	0	1	0	2	1
40 to 49 years ..	32	6	4	5	2	1	0	1	2	3	6	2
50 to 59 years ..	36	3	4	9	2	3	4	0	0	5	5	1
60 to 69 years ..	22	4	2	2	3	1	1	1	0	3	2	3
70 years and over	12	8	0	0	1	0	1	0	0	0	0	2
	119	23	11	19	8	7	7	2	5	11	17	9

DURATION OF INSURANCE												
1 and 2 years ..	19	1	1	3	0	1	3	2	2	0	6	0
3 to 5 years ..	17	5	2	2	0	1	0	0	1	1	4	1
6 to 10 years ..	15	1	2	1	1	1	0	0	2	4	2	1
11 to 20 years ..	35	6	5	10	2	2	2	0	0	5	1	2
21 years and over	33	10	1	3	5	2	2	0	0	1	4	5
	119	23	11	19	8	7	7	2	5	11	17	9

There have been one hundred and nineteen (119) persons killed by falls or on account of being struck or crushed by falling bodies.

The accidents admit of subdivision into three large classes which have their own peculiarities :

1st. Falls down stairs, on pavements, and from small heights. The majority of these are in persons of advanced age.

2d. Falls from windows, hatchways, buildings, etc. These occur at all periods of life, and in many cases are directly connected with the occupation. Of the nineteen (19) persons killed by falls from buildings, eleven (11) were house builders (carpenters, masons and roofers) engaged at their work ; two (2) farmers fell from haylofts ; three (3) were insane, one (1) of whom was trying to escape from an asylum through a window, and the rope he was using broke. Another jumped from a window, and a third escaped from an institution, wandered off and fell from a railroad trestle. One (1) fell in a gymnasium. Several injuries were connected directly with the occupation.

3d. Persons killed by being struck by falling bodies or substances. Four (4) farm laborers or farmers were crushed by falling trees when engaged in felling timber ; one (1) mason engaged at building house, killed by a falling brick. Several were men engaged about manufactories, lumber yards, or unloading vessels.

On the whole these figures and explanations are satisfactory. They give no special indication of carelessness or exposure, but merely represent dangers to which all are liable ; the number of accidents among house

builders alone is worthy of consideration, but as these represent a very large class in the community, and therefore in the total risks, the number of fatal accidents may not be excessive, and is to a certain extent counter-balanced by the general beneficial influence of their outdoor life.

DROWNING.

AGES	TOTALS	Johnstown Flood	Seafaring	Bathing	Rowing, Sailing, etc.	Travel	Suspicion of Suicide	Found Drowned	Fell Into Water	Unclassified
20 to 29 years	22	4	2	7	4	1	0	2	1	1
30 to 39 years	31	5	7	7	4	1	1	2	2	2
40 to 49 years	27	5	2	1	7	1	2	3	5	1
50 to 59 years	21	1	0	1	3	3	2	3	4	4
60 to 69 years	13	2	0	2	0	0	3	1	3	2
70 years and over ..	4	0	0	0	0	0	1	1	2	0
	118	17	11	18	18	6	9	12	17	10

DURATION OF INSURANCE										
1 and 2 years	34	4	8	9	6	1	2	1	2	1
3 to 5 years	26	5	2	4	6	2	0	3	1	3
6 to 10 years	15	3	1	1	3	0	3	0	2	2
11 to 20 years	32	4	0	3	3	3	3	6	7	3
21 years and over ..	11	1	0	1	0	0	1	2	5	1
	118	17	11	18	18	6	9	12	17	10

There have been one hundred and eighteen (118) deaths from drowning. Seventeen (17) of these were

occasioned by the calamity of the "Johnstown flood" in 1889; in nine (9) cases at least, there was a strong suspicion of suicide, and a lesser suspicion in some others of those marked as "found drowned;" eighteen (18) were drowned while bathing; eighteen (18) were out in pleasure boats, rowing, sailing, fishing, etc., and two (2) while skating. In eleven (11) cases the deaths were due to the occupations, as follows: three (3) sea captains; chief officer, pilot, engineer, steward, one (1) each; master mariners, four (4). These latter are generally in command of coasting schooners, and the mortality is so high that it is worthy of consideration whether they are insurable. Six (6) persons only were passengers traveling by water; one was on a steamer wrecked in Lake Michigan, and one on the Ohio River, one on the Sacramento, one in a schooner on the Newfoundland coast, one was on a launch taking passengers from the shore of Mexico to a steamer, and one in a collision of steamers in San Francisco Bay. It is interesting to compare this with the earlier experience of the Company. In the mortality report for year ending 1873, with one-half the deaths from casualties, and one-third the total mortality, there were twenty-six (26) deaths among passengers traveling by ocean, lake and river, and fourteen (14) of mariners, etc. During the past ten years, with a far greater number of lives at risk, there has not been a single death of a passenger traveling in an ocean steamer.

HORSES AND WAGONS.

AGES						TOTALS	Thrown From Carriage or Wagon	Thrown From Horse	Kick of Horse	Otherwise Injured
20 to 29 years	..	..	..	..	..	3	0	2	1	0
30 to 39 years	..	..	..	..	..	20	10	5	4	1
40 to 49 years	..	..	..	..	..	13	9	1	3	0
50 to 59 years	..	..	..	..	..	24	17	3	3	1
60 to 69 years	..	..	..	..	..	12	5	1	1	5
70 years and over	..	..	..	..	..	12	9	1	0	2
						84	50	13	12	9

DURATION OF INSURANCE										
1 to 2 years	..	..	..	..	..	14	6	5	3	0
3 to 5 years	..	..	..	..	..	16	9	3	2	2
6 to 10 years	..	..	..	..	..	13	10	1	2	0
11 to 20 years	..	..	..	..	..	28	18	2	4	4
21 years and over	..	..	..	..	..	13	7	2	1	3
						84	50	13	12	9

Eighty-four (84) persons have been killed by injuries received from horses and wagons. Fifty (50) persons were killed by being thrown from carriages or wagons; thirteen (13) thrown from horses; twelve (12) received fatal injuries from kicks of horses; the remainder were run over or struck by runaway teams or heavy trucks. Of those thrown from wagons, some were farmers engaged at their usual occupations, some were driving on business affairs (among whom were two (2) physicians, killed by

being thrown from their buggies), others driving for health or pleasure. The large majority of those thrown from wagons and of those run over were above fifty years of age. Of the twelve (12) killed by the "kick of a horse," eight (8) were farmers, one (1) a ranchman, and one (1) a blacksmith.

HOMICIDE.

AGES	TOTALS	Personal Quarrel	Shot by Employee	Killed in Riot	Murder and Robbery	Miscellaneous	Indefinite History
20 to 29 years	10	4	1	1	1	2	1
30 to 39 years	36	7	2	6	5	9	7
40 to 49 years	19	5	2	0	2	5	5
50 to 59 years	9	2	1	1	2	1	2
60 to 69 years	2	1	0	0	0	0	1
70 years and over ..	0	0	0	0	0	0	0
	76	19	6	8	10	17	16

DURATION OF INSURANCE							
1 and 2 years	34	7	3	6	3	9	6
3 to 5 years	26	8	0	1	7	4	6
6 to 10 years	5	2	1	0	0	1	1
11 to 20 years	9	1	2	1	0	3	2
21 years and over ..	2	1	0	0	0	0	1
	76	19	6	8	10	17	16

There have been seventy-six (76) homicidal deaths reported. A very large proportion of the whole number

were killed on account of personal quarrels or difficulties. In ten (10) cases the murder was committed by burglars or robbers; eight (8) were killed in riots, mêlées or brawls; two (2) men were killed by their wives; one (1) case was a deliberate murder, and in the other self-defense was alleged; one (1) man was killed by his mistress, and another by the brother of his mistress; three (3) others were killed on account of women; two (2) were killed by insane persons under the influence of delusions; one (1) was killed by Indians. In a few cases the persons were "found dead," and the cause and manner of death were unknown, or suicide was suspected.

Of these seventy-six (76) homicides, fifty (50) had been insured less than five (5) years, and thirty-four (34) less than two (2) years. The proportion for these early years of insurance is far larger than is found in any other class of casualties. It is evident from the death proofs that some of these persons were not proper risks for acceptance on account of the moral hazard involved, and which was not apparent at the time the risks were assumed.

The deaths were distributed geographically as follows :

New York, . . . 3	Arkansas, 6	Nebraska, . . . 2
Virginia, . . . 1	Missouri, 4	Indian Territory, . 2
West Virginia, 1	Tennessee, 1	New Mex. and Ariz., 3
South Carolina, 4	Ohio, . . . 3	California, . . . 4
Georgia, . . . 5	Illinois, . 2	Washington, . . . 1
Alabama, . . . 4	Michigan, . 2	Mexico and Yucatan, 7
Mississippi, . . 3	Wisconsin, 1	South Africa, . . . 1
Louisiana, . . . 4	Minnesota, 1	Italy, 2
Texas, 6	Kansas, . . . 3	—
		Total, 76

Regarding the three (3) deaths in New York State, one was killed by an insane man, one was a deliberate murder, and one was killed by a drunken guide in the Adirondacks. With these exceptions, there have been no homicides north of Virginia and east of Ohio.

There has been an enormous increase in the number of homicides since our former report of 1873. In that report the proportion of homicides to the total casualties was five per cent., and it is now ten per cent.

FIREARMS.

AGES	TOTALS	Weapon in His Own Hands	Weapon in Hands of Another	Unknown	Pistol	Gun	Suspicion of Suicide	Hunting	Cleaning Weapon	Did Not Know That It Was Loaded
20 to 29 years	12	8	3	1	9	1	5	1	1	1
30 to 39 years	14	12	2	0	3	11	0	8	1	0
40 to 49 years	28	23	2	3	12	13	2	8	4	2
50 to 59 years	11	10	1	0	6	5	3	4	1	0
60 to 69 years	6	5	0	1	2	3	0	2	0	0
70 years and over	1	1	0	0	0	1	0	0	0	0
	72	59	8	5	32	34	10	23	7	3

DURATION OF INSURANCE	TOTALS	Weapon in His Own Hands	Weapon in Hands of Another	Unknown	Pistol	Gun	Suspicion of Suicide	Hunting	Cleaning Weapon	Did Not Know That It Was Loaded
1 and 2 years	25	21	3	1	12	11	4	9	2	2
3 to 5 years	12	9	1	2	5	5	2	5	0	1
6 to 10 years	9	8	1	0	5	4	1	2	0	0
11 to 20 years	17	15	2	0	9	8	3	4	5	0
21 years and over	9	6	1	2	1	6	0	3	0	0
	72	59	8	5	32	34	10	23	7	3

Seventy-two (72) deaths have occurred from the careless use of firearms. Thirty-four (34) were caused by guns, and thirty-two (32) by pistols. Of the former, twenty-three (23) were by careless or accidental discharge of guns when hunting. In many of the cases of pistol shots, the persons were alone, and there is no positive knowledge of the manner of the accident; in several,

there was reason to suspect suicide, and in at least ten this was very probable. There is no way to avoid the hazard of this kind of accident, as long as the custom of keeping and using firearms is as general as at present in the United States.

POISONS.

AGES	TOTALS	Opium	Chloral	Other Poisons	Opium and Chloral, Self-administered
20 to 29 years	6	4	1	1	5
30 to 39 years	11	7	0	4	2
40 to 49 years	14	11	2	1	12
50 to 59 years	13	7	2	4	6
60 to 69 years	4	1	0	3	1
70 years and over	0	0	0	0	0
	48	30	5	13	26

DURATION OF INSURANCE					
1 and 2 years	8	6	0	2	5
3 to 5 years	11	8	1	2	7
6 to 10 years	11	6	1	4	4
11 to 20 years	7	5	1	1	4
21 years and over	11	5	2	4	6
	48	30	5	13	26

There have been forty-eight (48) deaths attributed to accidental poisoning; thirty-four (34) were from some

form of opium, and five (5) from chloral. In twenty-two (22) of the opium, and four (4) of the chloral cases, the medicine was self-administered, independent of medical advice, and taken in an overdose; in many of these cases there was evidence of previous use of the drug, and in a very few cases, reasonable suspicion of suicidal intention; in the other cases it was said to have been taken on account of sleeplessness or physical pain. The other poisonings were as follows:

Arsenic,	2 cases.	Murder indicated in both.
Carbolic acid,	3 “	Taken by mistake.
Corrosive sublimate, .	1 case.	“ “ “
Aconite,	2 cases.	“ “ “
Muriatic acid,	1 case.	“ “ “
Cannabis indica, . . .	1 “	Insured was an invalid, and used it as medicine for cough; took overdose.
Cocaine,	1 “	Habitual use; overdose.
Atropine,	1 “	Druggist's error.
Strychnine,	1 “	Deficient information.

HEAT, COLD, ETC.

AGES	TOTALS	Heat, Sunstroke	Cold, Frozen	Lightning	Cyclone or Tornadoes	Earthquake
20 to 29 years	5	1	1	2	1	0
30 to 39 years	3	2	0	1	0	0
40 to 49 years	12	10	1	0	1	0
50 to 59 years	7	6	1	0	0	0
60 to 69 years	6	4	0	0	1	1
70 years and over	2	2	0	0	0	0
	35	25	3	3	3	1

DURATION OF INSURANCE						
1 and 2 years	7	3	1	2	1	0
3 to 5 years	9	7	0	1	0	1
6 to 10 years	5	4	0	0	1	0
11 to 20 years	5	4	1	0	0	0
21 years and over	9	7	1	0	1	0
	35	25	3	3	3	1

Deaths resulting from exposure to heat and cold and violent action of the elements are classified among these accidental deaths. There have been thirty-five (35) in all: twenty-five (25) from heat or sunstroke, three (3) from cold, three (3) from lightning, three (3) from tornadoes, and one (1) from earthquake. Those who lost their lives in the Johnstown flood might have been included in this class, but I have preferred to place them with the "drowned." Among those killed by heat there were persons in all classes of occupations, indoor and outdoor,

and they resided chiefly in the middle tier of States. The three (3) deaths from cold or freezing occurred in Utah, Nevada and Oregon. The tornadoes were in New Hampshire, Minnesota and Louisville, and the earthquake at Charleston.

BURNS, SCALDS, EXPLOSIONS, BURNING BUILDINGS.

AGES								TOTALS	Burning Buildings	Miscellaneous
20 to 29 years	..	..	..	..	..	..	..	4	1	3
30 to 39 years	..	..	..	..	..	..	..	6	4	2
40 to 49 years	..	..	..	..	..	..	..	13	10	3
50 to 59 years	..	..	..	..	..	..	..	4	3	1
60 to 69 years	..	..	..	..	..	..	..	3	2	1
70 years and over	..	..	..	..	..	..	..	1	1	0
								31	21	10

DURATION OF INSURANCE										
1 and 2 years	..	..	..	..	..	..	..	7	6	1
3 to 5 years	..	..	..	..	..	..	..	4	1	3
6 to 10 years	..	..	..	..	..	..	..	7	6	1
11 to 20 years	..	..	..	..	..	..	..	9	5	4
21 years and over	..	..	..	..	..	..	..	4	3	1
								31	21	10

There have been thirty-one (31) deaths caused by burns, scalds and explosions. This class is made to embrace all deaths resulting from conflagrations, burns, suffocation, and those injured by falling or jumping from

burning buildings. Twenty (20) deaths have occurred as resulting from conflagrations; thirteen (13) were burnt or suffocated, and seven (7) were killed by falls or falling walls; six (6) were burned in hotels; three (3) were at work as firemen, and their occupation was thus responsible for their deaths. Of the other ten (10), three (3) were from burns and scalds, three (3) from the explosion of gas in mines, and two (2) druggists from explosion of chemicals. In this class of casualties death was incurred in seven (7) cases on account of exposure due to occupation.

MACHINERY, TOOLS, ETC.

AGES	TOTALS	Cotton-Gins	Saw-mills	Other Mills	Elevator Accidents	Unclassified
20 to 29 years	4	1	1	1	1	0
30 to 39 years	6	2	2	2	0	0
40 to 49 years	6	1	2	0	2	1
50 to 59 years	4	0	0	2	1	1
60 to 69 years	3	1	0	2	0	0
70 years and over	2	0	0	0	2	0
	25	5	5	7	6	2

DURATION OF INSURANCE						
1 and 2 years	11	4	3	2	1	1
3 to 5 years	4	0	1	1	2	0
6 to 10 years	2	0	1	1	0	0
11 to 20 years	6	1	0	2	3	0
21 years and over	2	0	0	1	0	1
	25	5	5	7	6	2

Twenty-five (25) deaths were direct results of injuries received from machinery, tools and elevators: five (5) in cotton-gins, five (5) in saw-mills, seven (7) in other factories, and six (6) from elevators. Nearly all these machine accidents occurred to persons directly occupied with the machinery. The cotton-gin and saw-mill employees were generally reported at the time of insurance as engaged in some other occupation, and probably had been at work at this kind of labor for only a short time. There is always a considerable element of danger involved in the working about machinery of any kind, and this danger is very much greater in proportion to the inexperience of the workman. Of the saw-mill accidents none were in persons habitually engaged at the work, but either casual assistants or men, farmers and others, who gave but a few days each year to the mill. Of the other accidents, some were mechanics crushed by machinery or bursting fly-wheels, and one was a wood-worker who cut an artery with his chisel.

UNCLASSIFIED.

AGES							TOTALS	Asphyxiated by Gases	Miscellaneous	Imperfect Information
20 to 29 years	..	..	..	..	..	..	1	1	0	0
30 to 39 years	..	..	..	..	..	..	7	0	5	2
40 to 49 years	..	..	..	..	..	..	8	3	3	2
50 to 59 years	..	..	..	..	..	..	7	2	3	2
60 to 69 years	..	..	..	..	..	..	5	3	2	0
70 years and over	..	..	..	..	..	..	3	2	1	0
							31	11	14	6

DURATION OF INSURANCE										
1 and 2 years	..	..	..	..	..	..	4	1	2	1
3 to 5 years	..	..	..	..	..	..	2	0	2	0
6 to 10 years	..	..	..	..	..	..	7	4	2	1
11 to 20 years	..	..	..	..	..	..	8	2	4	2
21 years and over	..	..	..	..	..	..	10	4	4	2
							31	11	14	6

Thirty-one (31) deaths have been grouped together as "Unclassified" or "Miscellaneous," as they have resulted from miscellaneous causes and therefore do not admit of other classification. One group of these, however, is sufficiently important to require a special notice, namely, deaths by asphyxia from gases. Eleven (11) deaths have come from such a cause. One was a farmer who was suffocated by carbonic acid gas in cleaning out a deep well;

the other ten (10) were all killed by inhalation of illuminating gas. They were found dead or dying in their beds and the rooms filled with escaped gas—four (4) in hotels or boarding houses, four (4) in their own rooms. The majority of them were persons past middle life, and after many years of insurance. The remaining cases occurred from accidents of various kinds, which call merely for enumeration:

- Three (3) were gored by bulls and cows.
- One (1) killed by dynamite.
- One (1) killed by explosion of a boiler.
- One (1) crushed between wharf and ferryboat.
- One (1) struck with a pitchfork in his eye.
- One (1) lumberman killed by a log.
- One (1) swallowed false teeth.
- One (1) thrown from a sled when coasting.
- One (1) thrown from a bicycle.

It will now be interesting to compare the mortality occurring from casualties during recent years with that occurring during the earlier periods of the Company's experience. This comparison must be based on the total deaths from all causes, as unfortunately the number of lives at risk cannot easily be ascertained. The following table gives the figures for the total deaths for all ages and all periods of insurance, and also for the deaths during certain specified periods of life and insurance.

	1844 to 1873	1884 to 1893
Total deaths from all causes	5,385	17,375
Total deaths from casualties	359	759
Percentage	6.66	4.37
Total deaths under 50 years of age	3,523	5,840
Total deaths from casualties, same ages.. .. .	289	448
Percentage	8.21	7.67
Total deaths under 10 years of insurance	4,149	6,005
Total deaths from casualties for same period	306	430
Percentage	7.37	7.16

It will be at once observed that the percentage of accidental deaths based on the total mortality has declined nearly one-third since the Company's report of 1873. It would be erroneous, however, to infer that the actual mortality, as based on the lives exposed, is any less now than it was formerly. The conditions of the Company have changed markedly since that earlier report, and especially in those characteristics which affect the causes of mortality. In the earlier period the lives were young, both in age and in insurance, consequently there were few deaths from the degenerative diseases of advancing years, and the benefits of recent medical selection were more pronounced. In the earlier period, two-thirds of the deaths occurred in persons under fifty years of age; while in the latter period this proportion was only

one-third. Again, in the earlier period four-fifths of the mortality occurred under ten years of insurance, while in the latter period the proportion was about one-third.

The probable effect of this change in the mortality had already been considered, and was expressed in the former report as follows: "With advancing life, "new diseases and causes of death appear, and these not "only increase the total mortality, but also change the "relative proportion of the various causes of death. The "same diseases may continue to exist and to exert their "former influence, but the prevalence of the new diseases "diverts our attention from them and appears to make "them less frequent." In order to escape this fallacy, I have endeavored to assimilate the conditions at the two periods by leaving out all above fifty years of age and ten years of insurance. On comparison of the figures prepared under these limitations, it will be seen that the proportion of deaths from casualties is almost exactly the same at both periods. There is a slightly diminished proportion in the recent years, but this diminution is only one-half of one per cent. when based on the experience of similar ages, and one-fifth of one per cent. when based on similar insurance periods. This close correspondence in the rate of mortality from casualties during these two periods manifests itself most distinctly in the very earliest years of insurance. At this time the risks are presumably in the best physical condition. Medical examination

has eliminated all those suffering from any form of disease, but no examination can give any protection from chance of accidental death. Consequently, casualties assume a high proportion among the causes of death in this class of risks, while with each succeeding year the natural deterioration of health introduces other causes of death, and thus diminishes the proportionate rate of mortality from accidents.

	1844 to 1873	1884 to 1893
Total deaths in 1st and 2d years of insurance	1,117	1,785
Total deaths from casualties for same period	115	190
Percentage	10.3	10.6
Total deaths in 3d, 4th and 5th years of insurance	1,600	2,069
Total deaths from casualties for same period	111	137
Percentage	6.9	6.6

The proportions vary so little that the above may be regarded as the normal rate. In the earlier years of insurance, accidental deaths will probably cause about ten per cent. of the losses, and this percentage will gradually decrease on account of the actual increase in other and natural causes of death. The varieties and nature of the accidents will change. New inventions or discoveries, and modifications in the habits of life, will introduce new elements of peril, which at first appear to be new

risks superadded to those already existing, but this apprehension is generally groundless, and the result will be merely a substitution of a new for an old form of danger.

Having now analyzed the mortality from accidents, in accordance with the immediate and direct causes of death, it may be more interesting and profitable to examine them from another standpoint, namely, from the character of the perils surrounding the individual, and the circumstances under which accidents of various forms occur. Four general groups may be made, but the divisional lines between them are not absolutely distinct, and, although the groups have definite characteristics, it may be sometimes difficult to say in which particular group an individual case should be placed.

1st group. Those accidents which may be especially called "fortuitous;" they imply no special risk, hazard or carelessness on the part of the individual, but are such as might occur to any person in the community. In this group would be placed the deaths from trivial falls (down stairs, on pavements, etc.) from vehicles on public thoroughfares or railway crossings, from lightning, sunstroke or heat prostration, from conflagrations of houses, also those killed by extraordinary action of the elements, as floods (Johnstown), tornadoes and earthquakes. This group should also include those killed in the ordinary travel of daily life—such as the suburban railways and

street cars of cities—while engaged at their ordinary occupation.

2d group. This group closely approximates the first, and comprehends those who die from the perils which surround and the accidents which may occur to all classes of persons at periods or conditions of life slightly removed from their routine of habit and work. These occasions are when people exchange their work for relaxation, pleasure, sport or amusement, and at such times a certain amount of extra hazard is incurred. It may take the simple form of carriage driving, or the more risky one of hunting or boating. It includes all forms of pleasure—travel, horseback riding, hunting, sailing and boating, bathing, skating, bicycling and gymnasium exercise. All these sports and active amusements involve a certain amount of hazard, but this danger is far more than counterbalanced (as far as life and health are concerned) by the stimulus and exhilaration of the fresh air, the relief from care and monotony, and the renovating influence on the physical health. Therefore, as far as life insurance is concerned, however much an individual accident may be regretted, these habits and practices are to be encouraged and the accompanying risk disregarded.

3d group. This group embraces a class of casualties which have an underlying element of a moral nature. This moral factor may be crime, passion, over-indulgent

habits, or gross carelessness in the individual, encouraged sometimes by the general tone and customs of society. The casualties are those of homicide, asphyxia from gas, carelessness in the administration of medicine, and the carrying and handling of firearms. A few of the homicides are premeditated murders, or murders committed in attempt to rob, but most of them result from personal quarrels. The social custom which permits or encourages such settlement of quarrels tends also to the carrying of firearms and the occasional deaths from the careless handling of them. Over-indulgence in stimulants tempts to the use of opium and chloral, to allay the resulting nervousness, with the sequence of a fatal over-dose. In many of these cases there is a grave suspicion of suicide, as where a person is found dead with a pistol by his side, or a bottle of morphine or chloral on the table, or the gas escaping freely into his room. In the absence of direct evidence, charity gives a verdict in favor of "accident." These are the most deplorable and unsatisfactory cases among the "accidental" deaths. They offer no suggestion of any compensatory advantage, and very many of them occur during the early years of insurance.

4th group. This group comprises all those cases in which death has been occasioned by accidents due to the hazard inherent in the occupations in which the persons were engaged. It consists principally of men employed in railroading, seafaring, building, mechanical

occupations, and farmers. The last have been included on account of their daily exposure to injuries in using and caring for animals, and occasionally in cutting wood. Of the total seven hundred and fifty-nine (759) deaths from casualties, one hundred and three (103) belong to this group, and they are of sufficient importance to entitle them to particular enumeration and description. They are as follows:

FARMERS, 35.

- 15 farmers, thrown from wagons, carts, etc.
- 2 " " " horse.
- 9 " killed by kick of horse.
- 3 " " " bulls or cows.
- 2 " " " falls from hay.
- 4 " crushed by falling trees in chopping wood.

ALLIED OCCUPATIONS, 5.

- 1 wagon driver, thrown from wagon.
- 1 livery stable keeper, " " "
- 1 " " " " " horse.
- 1 blacksmith, kicked by horse.
- 1 lumberman, crushed by log.

RAILROADS, 12.

- 1 locomotive engineer, killed in railroad accident.
- 2 brakemen, " " " "
- 2 R. R. postal clerks, " " " "
- 3 station agents, " " " "
- 1 R. R. office clerk, " " " "
- 2 track laborers, " " " "
- 1 night patrol, " " " "

SEAFARING, 11.

1	S. S. captain,	lost at sea,	}	Lost in steamer Alvo, 1893.
1	S. S. chief officer,	" "		
1	S. S. engineer,	" "		
1	S. S. captain,	" "		Chilian steamboat.
1	steam tug captain,	" "		on coast of Oregon.
1	pilot,	" "		Atlantic Ocean, near New York.
1	master mariner,	" "		coal schooner, sailing from Baltimore, near Delaware Breakwater.
1	" "	" "		trading schooner near Grand Banks, Newfoundland.
1	" "	" "		brigantine, voyage from Sicily to Newfoundland.
1	" "	sealing schooner, wrecked on coast of Newfoundland.		
1	steward,	steamboat foundered in Lake Superior.		

BUILDERS, 13.

7	carpenters,	fell from buildings or scaffolds.			
2	tinnerns,	"	"	"	"
1	slater,	"	"	"	"
1	mason,	"	"	"	"
2	masons,	killed by falling bricks or walls.			

MECHANICS AND WORKERS IN MACHINERY, 16.

4	ginners,	injured in cotton-gins.			
3	sawyers,	killed by circular saw.			
1	millor,	caught in machinery.			
1	"	killed by loose flying pulley.			
1	wire roller,	drawn between rollers.			

- 1 mechanic, killed by machinery.
- 1 " struck by piece of timber (saw filer in saw-mill).
- 1 miller, running stationary engine, fly-wheel burst.
- 1 blacksmith, pipe exploded at forge.
- 1 mechanic, testing an elevator.
- 1 carpenter, cut artery with chisel.

MINES, QUARRIES, STONE MILLS, 5.

- 1 overman of mine, fell down shaft.
- 1 foreman of workmen in quarry, fell down quarry.
- 1 laborer at stone saw-mill, crushed by falling stone.
- 2 mine employees, explosion of gas.

MISCELLANEOUS, 7.

- 4 firemen, killed at fires (2 professional and 2 volunteer).
- 2 druggists, explosion of chemicals.
- 1 sheriff, shot in riot (Arkansas).

Farmers give the largest number of deaths, but this preponderance is due to the large number of such lives, and not to any excessive hazard. The dangers are real, but the risk is fully equalized by the general healthfulness of the occupation.

Railroading and seafaring are both hazardous occupations, and have occasioned a considerable proportion of the mortality. The former was examined in the earlier portion of this report (page 7), and therefore requires no additional explanation. It is satisfactory, however, to find that there have been no deaths among conductors, section and yard masters, whom the Company is in the habit of insuring at ordinary rates. With regard to the

latter occupation, it will be observed that three of the cases occurred in the same casualty. They were officers of the freight steamer "Alvo," which was lost in a hurricane in the summer of 1893 when on a voyage from New York to the West Indies. Three were master mariners of schooners on the Atlantic coast (two near Newfoundland). This appears to be a large loss, but possibly it is compensated for by the extra charge usually made in this class of cases.

Thirteen (13) deaths have occurred among persons engaged in the building trades. This is a large number, and undoubtedly represents very considerable hazard in the occupation. On the other hand, this form of occupation is engaged in for only a portion of the time, other intervals being taken up with shop work. It is also probable these dangers are compensated for by the outdoor and healthy life.

Sixteen (16) deaths have occurred to mechanics, millers and other persons engaged about machinery. Four (4) of these accidents happened from cotton-gins, and three (3) from circular saws. In the majority of both these classes the injuries occurred to persons who were only occasionally engaged at the work, and therefore ignorant or careless of the dangers. The other nine (9) cases occurred in various ways, and represent the unavoidable hazards attending employment in factories and machine shops.

New inventions and appliances bring new forms of danger, and this danger is proportionate to the novelty. Custom, self-interest and appropriate legislation, however, soon interpose reasonable safe-guards and reduce the danger to a minimum.

The remaining cases require no special comment.

Respectfully submitted,

ELIAS J. MARSH, M. D.,

Medical Director.

April 12th, 1894.

